Both Dod and myself agreed that the shark was no "muldoan"- a local name for Basking Shark. It was a shark we had never seen before in these waters. I saw enough of the tail to eliminate Thresher Shark *Alopia vulpinus,* and Porbeagle *Lamna nasus* never reach this size. The gill rakers visible were also much smaller than those of Basking Shark. The shark was broad-headed and the steely-grey dorsal surface was smooth, unlike that of Basking Shark. The eye was dark, but we were unable to check the ventral colour of the shark because of its size and weight and the fact that it was swathed in netting.

Having checked through many books and guides we concluded that it was possibly a Great White Shark *Carcharodon carcharias,* but could not be 100% certain. However the presence of a large shark species in northern Scottish waters is perhaps worth recording. There have been anecdotal reports and descriptions of this species in British waters in recent years including off Cornwall and the Hebrides but none are officially accepted.

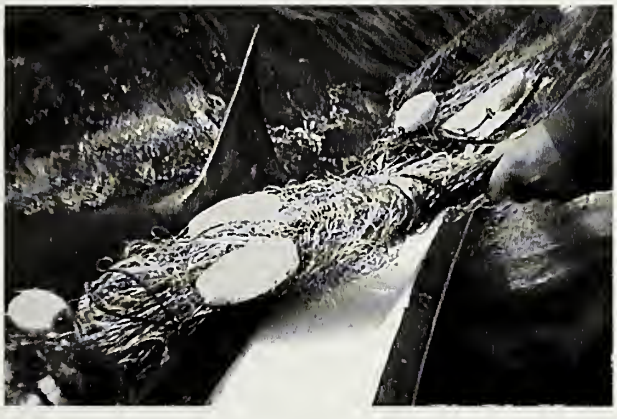

Fig. 1. Large shark caught in fishing gear off the east Caithness coast on 15 July 2003.

Ravens stick-gathering at a potential nesting site within the Glasgow city boundaries

John Mitchell

22 Muirpark Way, Drymen, G63 0DX

The hostility often shown towards ravens *Corvus corax* L. because of their alleged destructiveness towards new-born lambs and young game birds has a long history, the persecution of the birds becoming particularly effective following the development of modern firearms in the 19th century. From being a once common species in both town and country, the raven became restricted to the remoter hills and mountains. In more modern times numbers fell still further through the combined effects of blanket conifer planting of large tracts of the uplands, changes in animal husbandry leading to a reduction in the availability of sheep carrion, and by falling victim to the laying-out of poison baits to control foxes (Mitchell, 1981). As a result, in some of the southern and central counties of Scotland ravens ceased to breed altogether (Thom, 1986).

Within the writer's study area covering the foothills between the north side of Glasgow and the Highland Line, a slow recovery in the local raven population first became apparent towards the end of the 1980s. By the mid 1990s most of the vacant traditional nesting sites in the Kilpatrick, Campsie and Fintry Hills had been re-occupied, with seemingly surplus birds prospecting new territories in the district (Mitchell, 1994). One such pair established themselves at the still worked Dumbuck Quarry, the nest site/s directly overlooking the busy Dumbarton Boulevard (Mitchell, 2000). Even with such close proximity to human presence, to date these birds have successfully reared young at Dumbuck every year for at least ten seasons. On the Renfrewshire side of the River Clyde ravens are similarly extending their breeding range towards the urban areas, not only utilising quarry faces but electricity pylons (Gibson, 2007).

In the early spring of 2007 word was received that a pair of ravens had been seen carrying sticks to the outer cage-work to a pair of huge gasometers dominating the skyline at Temple within the Glasgow city boundaries (Fig. 1). Despite being surrounded by housing estates, a railway line and a canal towpath – well used by walkers, joggers and cyclists alike - the Temple gas storage installation is secure against intrusion and disturbance from outside. During personal visits to the site over the next few weeks, observations made from just outwith the high perimeter fence confirmed that a pair of ravens was indeed regularly present, although as far as I was able to ascertain their stick-gathering activities came to very little.

Fig. 1. The structure of the outer cages to the two gasometers at Temple in Glasgow offers many convenient niches where a pair of ravens could build a nest.

Ravens do not normally breed until they are at least three years old (Ratcliffe, 1997), so that it is possible

they were immature birds just going through the motions of nest-building. In adopting an urban way of life, there can be little doubt that these particular ravens are following their forebear's old trade as town scavengers. Very little misses the sharp eye of a raven and it is likely these opportunistic birds have already discovered rich pickings amongst the leftovers from 'carry-out' meals carelessly discarded on the surrounding streets.

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Marine midges (Diptera, Chironomidae) at Wemyss Bay in the Firth of Clyde

Myles O'Reilly

Scottish Environment Protection Agency, Redwood Crescent, East Kilbride G74 5PP
E-mail: myles.oreilly@sepa.org.uk

In Britain there are 161 species of biting midges, family Ceratopogonidae, (Chandler, 1998) and nearly 600 species of non-biting midges, family Chironomidae (Langton & Pinder, 2007). The west coast of Scotland is renowned for those biting midges that feed on warm-blooded mammals, such as *Culicoides obsoletus* and *C. impunctatus,* which are the scourge of outdoor activities in the summer months. The non-biting chironomids, on the other hand, are little known except to aquatic biologists. Their larvae inhabit freshwater rivers, streams, and ditches and may also be found in brackish water. They are frequently observed in aquatic invertebrate monitoring surveys. Among the British chironomids there is one species of marine midge, *Clunio marinus* Haliday, whose larvae inhabit fully marine waters. *C. marinus* is most abundant in the mid-littoral zone, especially in southern and western UK. Its larvae have been associated with oyster and mussel beds (Cranston, 1982). A glimpse into its rather unusual life history is described in the encounter below.

During a warm, balmy, summer's evening on August 8th 2005, and again on August 13th 2006, an excursion was made to the shore at Wemyss Bay, in the Firth of Clyde. The tide was out on both occasions and large swarms of midges were to be seen dancing near rocks at the water's edge. The water was calm and quite a few midges were observed skimming along the water surface with their wings whirring. Numerous midges were also seen on nearby rocks, with their wings fanning in a similar manner, scurrying rapidly over the barnacles and tiny juvenile mussels. Many of the latter midges appeared to be trailing a large extrusion from the tip of their abdomen. At first it was thought these might be egg strings but closer examination revealed that the attachment was the grub-like body of a second wingless midge. Subsequent microscopical examination of captured specimens revealed these were nuptial pairs of the marine midge, *Clunio marinus*, identified by the distinctive tail end (hypogeum) of the male (Langton & Pinder, 2007).

Fig. 1. Female and male marine midge (*Clunio marinus*) from Wemyss Bay in the Firth of Clyde.

The male marine midge is around 1.5mm long with a well developed thorax with legs and wings. The female is also around 1.5mm, with a short thorax with short vestigial legs and no wings. The female abdomen is well developed and rather stout (Fig. 1). The larvae of *Clunio marinus* live in small tubes on the seabed, where they graze detritus in a similar manner to their freshwater relatives. When mature, the midge pupae rise to the water's surface timing their arrival to spring low tides during calm weather. The males hatch out and take flight but the females remain suspended at the surface. The males skim along the water surface until they find a hatching female with which to pair. With the female in tow the males head for shore to seek suitable egg-laying sites for their consort (Olander & Palmen, 1968). The Wemyss Bay marine midges appear to favour encrustations of small mussels close to the low water mark as appropriate places to lay their egg masses. The midges only have a few hours to hatch, find a mate, and lay their eggs, which are then covered by the advancing tide. Neither of the adult midges feed and both die shortly after egg laying.